

What is claimed is:

1. An image forming apparatus comprising:

a process cartridge configured to include a developing device comprising a developer carrier configured to convey a developer deposited thereon to a developing zone where said developer carrier faces and image carrier and a toner storing portion configured to store a toner, said developing device feeding said toner from said toner storing portion to said developer carrier or said developer deposited on said developer carrier; and

a toner container storing fresh toner to be replenished to said toner storing portion;

wherein said process cartridge and said toner container each are removably mounted to said image forming apparatus independently of each other, and toner conveying means for conveying the fresh toner from said toner container to said toner storing portion by using an own weight of said fresh toner is mounted on a body of said image forming apparatus.

2. The apparatus as claimed in claim 1, wherein said process cartridge is positioned at a lower level than an outlet of said toner container.

3. The apparatus as claimed in claim 1, wherein said toner container is mounted to or dismounted from the body of said apparatus from above said body.

4. The apparatus as claimed in claim 1, wherein said toner container comprises a toner storing body and a support member affixed to an open portion of said toner storing body, said support member is formed with an outlet and a grip, said toner storing body is laid on and affixed to toner container storing means included in the body of said apparatus, and when said support member is locked to said toner container storing means, said outlet is communicated to an inlet formed in said toner container storing means.

5. The apparatus as claimed in claim 4, further comprising a shutter mechanism attached to said outlet of said support member and movable in a circumferential direction of said outlet, and when said support member is turned by a preselected angle, said support member is locked to said toner container storing means while said shutter mechanism opens said outlet in interlocked relation to a movement of said support member.

6. The apparatus as claimed in claim 5, wherein said shutter mechanism closes said outlet of said support member when said grip of said support member is held by hand and turned in a direction opposite to an locking direction to thereby unlock said support member, and said toner container is removed from said body of said apparatus with said grip being held by hand.

7. The apparatus as claimed in claim 5, wherein when said support member is turned relative to said toner storing body after removal of said toner container from said body of said apparatus, said shutter mechanism does not open said outlet of said support member.

8. The apparatus as claimed in claim 1, wherein said toner storing body is configured to convey the toner stored in a preselected direction when rotated and is rotatable relative to said support member, and said toner conveying means is operated in synchronism with a rotation of said toner storing body.

9. The apparatus as claimed in claim 8, further comprising a shutter mechanism attached to said outlet of said support member and movable in a circumferential direction of said outlet, and when said support member is turned by a preselected angle, said support member is locked to said toner container storing means while said shutter mechanism opens said outlet in interlocked relation to a movement of said support member.

10. The apparatus as claimed in claim 9, wherein said shutter mechanism closes said outlet of said support member when said grip of said support member is held by hand and turned in a direction opposite to an locking direction to thereby unlock said support member, and said toner container is removed from said body of said apparatus

with said grip being held by hand.

11. The apparatus as claimed in claim 9, wherein when said support member is turned relative to said toner storing body after removal of said toner container from said body of said apparatus, said shutter mechanism does not open said outlet of said support member.

12. The apparatus as claimed in claim 1, wherein said toner conveying means comprises a pipe forming a toner conveying path and a coil disposed in said pipe and movable to exert a conveying force on the toner toward a downstream side in a direction of toner conveyance.

13. The apparatus as claimed in claim 12, further comprising a shutter mechanism attached to said outlet of said support member and movable in a circumferential direction of said outlet, and when said support member is turned by a preselected angle, said support member is locked to said toner container storing means while said shutter mechanism opens said outlet in interlocked relation to a movement of said support member.

14. The apparatus as claimed in claim 13, wherein said shutter mechanism closes said outlet of said support member when said grip of said support member is held by hand and turned in a direction opposite to an locking direction to thereby unlock said support member, and said toner container is removed from said body of said apparatus

with said grip being held by hand.

15. The apparatus as claimed in claim 13, wherein when said support member is turned relative to said toner storing body after removal of said toner container from said body of said apparatus, said shutter mechanism does not open said outlet of said support member.

16. The apparatus as claimed in claim 1, further comprising toner content sensing means for sensing a toner content of the developer present in said developing device, and control means for controlling replenishment of the toner to said developing device in accordance with an output of said toner content sensing means.

17. The apparatus as claimed in claim 1, further comprising counting means for counting a number of pixels of an image formed, and control means for controlling replenishment of the toner to said developing device in accordance with an output of said counting means.

18. The apparatus as claimed in claim 1, wherein said process cartridge and said toner container respectively comprise at least two process cartridges and at least two toner containers, an intermediate image transferring unit is positioned between at least two process cartridges and said at least two toner containers, and outlets of said at least two toner cartridges, said toner conveying means and outlets of toner storing bodies are positioned at one

side of said intermediate image transferring unit.

19. The apparatus as claimed in claim 1, wherein after mounting of said toner container to said body of said apparatus, a toner replenish mode for replenishing the toner to a toner conveying path is effected before development to thereby prepare said toner conveying path for development, and an operation of said toner conveying means is varied during said toner replenish mode.

20. The apparatus as claimed in claim 19, wherein at least part of said pipe is provided with a higher flow passage limiting ability than the other part of said toner conveying means in said pipe.

21. The apparatus as claimed in claim 19, further comprising sensing means for sensing an amount of the toner remaining in the conveying path, wherein the toner replenish mode is ended when said sensing means senses a preselected amount of the toner remaining in said conveying path.

22. The apparatus as claimed in claim 19, further comprising time counting means for counting a duration of the toner replenish mode, wherein the toner replenish mode is ended said counting means counts a preselected period of time.

23. The apparatus as claimed in claim 19, wherein said toner container further comprises a storage for

selectively inputting or outputting data relating to said toner container, and a data processor is mounted on the body of said apparatus for reading or writing said data out of or in said storage.

24. The apparatus as claimed in claim 19, wherein the operation of said toner conveying means is varied during the toner replenish mode in accordance with the data readout of said storage by said data processor.

25. In a toner container storing toner for replenishment and removably mounted to a body of an image forming apparatus, said image forming apparatus comprising:

a process cartridge configured to include a developing device comprising a developer carrier configured to convey a developer deposited thereon to a developing zone where said developer carrier faces and image carrier and a toner storing portion configured to store a toner, said developing device feeding said toner from said toner storing portion to said developer carrier or said developer deposited on said developer carrier; and

wherein said process cartridge and said toner container each are removably mounted to said image forming apparatus independently of each other, and toner conveying means for conveying the fresh toner from said toner container to said toner storing portion by using an own

weight of said fresh toner is mounted on a body of said image forming apparatus.

26. In a process cartridge removably mounted to a body of an image forming apparatus comprising an image carrier configured to form a latent image thereon, a charger configured to uniformly charge said image carrier, a developing device configured to convey a developer deposited thereon to a developing zone where said developing device faces said image carrier and developing said latent image with said developer to thereby produce a corresponding toner image, and a cleaning device for removing toner left on said image carrier after transfer of said toner image to a recording medium, said process cartridge comprising, among said image carrier, said developing device, said charger and said cleaning device, said developing device, said process cartridge and a toner container, storing fresh toner for replenishment, each are removably mounted to said image forming apparatus independently of each other, and toner conveying means for conveying said fresh toner from said toner container to a toner storing section of said developing device by using an own weight of said fresh toner is mounted on a body of said image forming apparatus.